



U.S. Department  
of Transportation

**Research and  
Special Programs  
Administration**

400 Seventh Street, S.W.  
Washington, D.C. 20590

JAN 9 2001

DOT-E 12442  
(FIRST REVISION)

EXPIRATION DATE: May 31, 2002

(FOR RENEWAL, SEE 49 CFR 107.109)

1. GRANTEE: Cryogenic Vessel Alternatives  
La Porte, TX
2. PURPOSE AND LIMITATIONS:
  - a. This exemption authorizes the manufacture, marking, sale and use of a non-DOT specification vacuum insulated portable tank, conforming with the regulations applicable to a DOT Specification MC 338 cargo tank, except as specified herein, for the transportation in commerce of nitrogen, refrigerated liquid. This exemption provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein.
  - b. The safety analyses performed in development of this exemption only considered the hazards and risks associated with transportation in commerce.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR §§ 173.318 and 176.76(g)(1) in that a non-DOT specification packaging is not authorized except as specified herein.
5. BASIS: This exemption is based on the application of Cryogenic Vessel Alternatives dated September 19, 2000, and supplemental information dated November 21, 2000, submitted in accordance with § 107.105 and the public proceeding thereon.

6. HAZARDOUS MATERIALS (49 CFR 172.101):

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Proper Shipping Name/ Hazardous Materials Description	Hazard Class/ Division	Identification Number
Nitrogen, refrigerated liquid	2.2	UN1977

7. SAFETY CONTROL MEASURES:a. PACKAGING -

(1) Packaging authorized is an insulated non-DOT specification portable tank designed and constructed in accordance with DOT Specification MC-338 cargo tank motor vehicle, except as modified herein. The portable tank is enclosed in an ISO type frame and is vacuum-insulated. Design pressure may not exceed 45 psig for the internal tank. Design temperature is -320°F for the inner tank and any part, valve or fitting that may come in contact with the lading. Water capacity may not exceed 3200 gallons, nominal. Tank material is SA 240 Type 304 stainless steel for the inner tank and A607 Grade 50 carbon steel for the outer jacket.

(2) Tanks must conform with Cryogenic Technical Services, Inc. drawing numbers 10298 dated 2/22/00, 10375 dated 2/14/00, 10404 dated 2/15/00 and 10252 dated 1/20/00, calculations, specifications and other drawings on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA). Additionally, tanks must conform with § 178.338, except as follows:

(i) Impact testing is not required for stainless steels used for a lading warmer than -425°F.

(ii) § 178.338-10 does not apply.

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(iii) The portable tank need not conform with § 178.338-13(b) or (c). Lifting lugs, framework and any anchoring to the inner tank or the tank jacket must conform with § 178.338-13(a).

(iv) Portable tanks that meet the definition of "container" must meet the requirements of 49 CFR parts 450 thru 453, and each design must be qualified in accordance with § 178.270-13(c).

- b. TESTING - Each portable tank must be reinspected and retested once every five years in accordance with the procedure prescribed in § 173.32(e) for DOT Specification 51 portable tanks. The test pressure for the inner tank shall be determined from the following formulas:

If there is no vacuum in the outer jacket during test:

$$P_T = 1.25 \times P_d$$

If vacuum exists in the outer jacket during test:

$$P_T = [1.25 \times P_d] - 14.7$$

Where:

$P_T$  = Test pressure, psig

$P_d$  = Design pressure (the sum of the maximum allowable working pressure, static head of liquid in inner tank in psi, and 14.7 psi)

c. OPERATIONAL CONTROLS -

(1) Each portable tank must be prepared and shipped as required in § 173.318, as applicable for the lading.

(2) Shipments by cargo vessel must conform with § 176.76(g). The portable tank must not be overstowed with other containers or freight.

(3) Any lading road relief valve set at a pressure lower than that prescribed for the (safety) pressure relief valve must be closed during transportation by cargo vessel.

(4) Tanks may not be stacked.

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8. SPECIAL PROVISIONS:

a. In accordance with the provisions of Paragraph (b) of § 173.22a, persons may use the packaging authorized by this exemption for the transportation of the hazardous materials specified in paragraph 6, only in conformance with the terms of this exemption.

b. A person who is not a holder of this exemption, but receives a package covered by this exemption, may reoffer it for transportation provided no modifications or changes are made to the package and it is offered for transportation in conformance with this exemption and the HMR.

c. A current copy of this exemption must be maintained at each facility where the package is offered or reoffered for transportation.

d. Each packaging manufactured under the authority of this exemption must be either (1) marked with the name of the manufacturer and location (city and state) of the facility at which it is manufactured or (2) marked with a registration symbol designated by the Office of Hazardous Materials Exemptions and Approvals for a specific manufacturing facility.

e. A current copy of this exemption must be maintained at each facility where the package is manufactured under this exemption. It must be made available to a DOT representative upon request.

f. MARKING - Each portable tank must be plainly marked "DOT-E 12442" on both sides near the middle, in letters at least two inches high on a contrasting background. "DOT-E 12442" must replace the mark "MC-338" on the nameplate specified in § 178.338-18(a).

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle and cargo vessel.

10. MODAL REQUIREMENTS: A current copy of this exemption must be carried aboard each cargo vessel or motor vehicle used to transport packages covered by this exemption.

11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this exemption and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:

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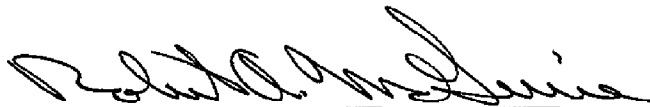
- o All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, Parts 171-180.
- o Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this exemption must receive training on the requirements and conditions of this exemption in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this exemption, including display of its number, when this exemption has expired or is otherwise no longer in effect.

12. REPORTING REQUIREMENTS: The carrier is required to report any incident involving loss of packaging contents or packaging failure to the Associate Administrator for Hazardous Materials Safety (AAHMS) as soon as practicable. (Sections 171.15 and 171.16 apply to any activity undertaken under the authority of this exemption.) In addition, the holder(s) of this exemption must also inform the AAHMS, in writing, as soon as practicable of any incidents involving the package and shipments made under this exemption.

Issued in Washington, D.C.



Robert A. McGuire  
Associate Administrator for  
Hazardous Materials Safety

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(DATE)

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration, Department of Transportation, Washington, D.C. 20590.  
Attention: DHM-31.

The original of this exemption is on file at the above office. Photo reproductions and legible reductions of this exemption are permitted. Any alteration of this exemption is prohibited.

Copies of exemptions may be obtained from the AAHMS, U.S. Department of Transportation, 400 7th Street, S.W., Washington, DC 20590-0001, Attention: Records Center, 202-366-5046.

PO: PTolson